

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 26. (canceled).

27. (previously presented): An electrode used for a fuel cell, the electrode comprising:
a substrate;

a current-collector arranged on one of surfaces of said substrate; and

a catalyst layer arranged on the other surface of said substrate,

wherein.

said substrate contains carbon as a principal component;

said current-collector contains an element which will make carbide;

said current-collector and said substrate are bonded to each other; and a carbide layer is formed at an interface between said substrate and said current-collector.

28.-29. (canceled).

30. (currently amended): The electrode used for a fuel cell as set forth in claim 29, wherein said current-collector contains one or more element(s) selected from a group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Fe, Co, Ni, Al and C.

31. (previously presented): The electrode used for a fuel cell as set forth in claim 27, wherein said current-collector contains one or more element(s) selected from a group consisting of Au, Ag, Cu and Pt.

32. (previously presented): The electrode used for a fuel cell as set forth in claim 27, wherein said current-collector is comprised of a metal plate or a metal mesh.

33. (previously presented): The electrode used for a fuel cell as set forth in claim 27, wherein said current-collector has a thickness equal to or greater than 0.05 mm, but equal to or smaller than 1 mm.

34. (withdrawn): A fuel cell comprising:

a fuel electrode;

an oxidizer electrode; and

a solid electrolyte film sandwiched between said fuel electrode and said oxidizer electrode,

wherein at least one of said fuel electrode and said oxidizer electrode is comprised of an electrode comprising:

a substrate;

a current-collector arranged on one of surfaces of said substrate; and

a catalyst layer arranged on the other surface of said substrate,

wherein said current-collector and said substrate are bonded to each other.

35. (withdrawn): The fuel cell as set forth in claim 34, wherein said fuel electrode is comprised of said electrode, and fuel is supplied directly to a surface of the current-collector of said electrode.

36. (withdrawn): The fuel cell as set forth in claim 34, wherein said fuel electrode is comprised of said electrode, and further comprising a fuel reservoir or a fuel channel making contact with a surface of said current-collector of said electrode for supplying fuel to said fuel electrode.

37. (withdrawn): The fuel cell as set forth in claim 34, wherein said oxidizer electrode is comprised of said electrode, and an oxidizer is supplied directly to a surface of said current-collector of said electrode.

38. (withdrawn): The fuel cell as set forth in claim 34, wherein said current-collector of said electrode defining said oxidizer electrode makes direct contact at a surface thereof with atmosphere.

39. (withdrawn): The fuel cell as set forth in claim 34, further comprising a packing material with which said current-collector is packed at a surface thereof.

40. (withdrawn): The fuel cell as set forth in claim 34, wherein organic liquid fuel is supplied to said fuel electrode.

41. (withdrawn): A fuel cell comprising a plurality of unit cells wherein unit cells disposed adjacent to each other are connected with one another through a connection electrode, wherein each of said unit cells is comprised of a fuel cell comprising:
a fuel electrode;
an oxidizer electrode; and
a solid electrolyte film sandwiched between said fuel electrode and said oxidizer electrode,

wherein at least one of said fuel electrode and said oxidizer electrode is comprised of an electrode comprising:

a substrate;
a current-collector arranged on one of surfaces of said substrate; and
a catalyst layer arranged on the other surface of said substrate,
wherein said current-collector and said substrate are bonded to each other.

42. (withdrawn): The fuel cell as set forth in claim 41, wherein said plurality of unit cells have a common solid electrolyte film.

43. (withdrawn): A fuel cell comprising:
a cylindrical fuel reservoir; and
a plurality of unit cells,
wherein each of said unit cells is comprised of a fuel cell comprising:
a fuel electrode;
an oxidizer electrode; and
a solid electrolyte film sandwiched between said fuel electrode and said oxidizer electrode,
wherein at least one of said fuel electrode and said oxidizer electrode is comprised of an electrode comprising:
a substrate;
a current-collector arranged on one of surfaces of said substrate; and
a catalyst layer arranged on the other surface of said substrate,
wherein said current-collector and said substrate are bonded to each other,
said fuel electrode of each of said unit cells is arranged on at least one of outer and inner surfaces of said fuel reservoir.

44. (withdrawn): The fuel cell as set forth in claim 43, further comprising a connection electrode through which unit cells disposed adjacent to each other are connected to each other.

45. (withdrawn): The fuel cell as set forth in claim 44, wherein said plurality of unit cells have a common solid electrolyte film.

46. (withdrawn): A method of fabricating a fuel cell comprising a substrate, a current-collector arranged on one of surfaces of said substrate, and a catalyst layer arranged on the other surface of said substrate, comprising:

a first step of coating a solution containing both particles containing solid polymer electrolyte and carbon particles carrying at catalyst, onto one of surfaces of said substrate for forming said catalyst layer; and

a second step of bonding said substrate at the other surface thereof to said current-collector.

47. (withdrawn): The method as set forth in claim 46, wherein said substrate and said current-collector are bonded to each other by thermal compression in said second step.

48. (withdrawn): The method as set forth in claim 46, wherein said substrate and said current-collector are bonded to each other by brazing in said second step.

49. (withdrawn): The method as set forth in claim 48, wherein said substrate and said current-collector are bonded to each other by brazing in said second step through the use of one or more brazing metals selected from a group consisting of Pd, Fe, Ti, Ni, Zr, Cd and Al.

50. (withdrawn): The method as set forth in claim 46, wherein said substrate contains carbon as a principle component, said current-collector contains metal, and said second step is comprised of a step of forming a bonding layer composed of metal carbide between said substrate and said current-collector.

51. (withdrawn): The method as set forth in claim 50, wherein said bonding layer contains one or more elements selected from a group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Fe, Co, Ni and Al.

52. (withdrawn): A method of fabricating a fuel cell, comprising the steps of:

fabricating an electrode, including the steps of coating a solution containing both particles containing solid polymer electrolyte and carbon particles carrying at catalyst, onto one of surfaces of said substrate for forming said catalyst layer, and bonding said substrate at the other surface thereof to said current-collector, and

compressing said solid electrolyte film and said electrode to each other with said solid electrolyte film and said electrode being kept to make contact with each other, for bonding said solid electrolyte film and said electrode to each other.

53. (previously presented): The electrode used for a fuel cell as set forth in claim 27, wherein said current-collector is bonded to said substrate by thermally annealing said current-collector.

54. (previously presented): The electrode used for a fuel cell as set forth in claim 27, wherein said current-collector is bonded to said substrate by brazing said current-collector and said substrate to each other.

55. (previously presented): The electrode used for a fuel cell as set forth in claim 31, wherein the one or more element(s) selected from the group consisting of Au, Ag, Cu and Pt is or are contained within a body of said current-collector.